

# **2000 COASTAL ILLICIT CONNECTION REMEDIATION GRANT PROGRAM**

## **Final Report**

**Prepared for**

**New Hampshire Estuaries Project**

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## **EXECUTIVE SUMMARY**

The New Hampshire Department of Environmental Services (DES) received money in 2000 from the New Hampshire Estuaries Project (NHEP) to administer a grant to coastal municipalities to eliminate illicit discharges into their storm drainage systems. As part of this agreement, DES issued a total of \$18,000 in grants to Portsmouth, Dover, and Rochester. The money was used on projects that eliminated a cross-connection between a sewer line and the storm drain system, rerouted catch basins from the sewer system to the storm drainage system, eliminated several illicit connections of residential buildings to the storm system, and identified new illicit connections by smoke testing. All of these efforts helped improve water quality in the coastal area by reducing bacteria inputs.

The NHEP funding was made available in order to fulfill several water quality action items identified in the NHEP Management Plan. The Coastal/Piscataqua watershed has been identified by DES as a category I watershed, which means that it does not meet several clean water goals and is in need of restoration. DES has worked in the coastal watershed since 1996 to reduce bacteria inputs that cause recreational shellfish beds to be closed. The grants described in this final project report complemented DES's efforts, and helped foster a partnership between DES and the communities to improve water quality problems in the area.

## **INTRODUCTION**

On May 10, 2000, the Governor and Council approved a Memorandum of Agreement (MOA) between the New Hampshire Office of State Planning (OSP) NHEP and DES to implement several actions to improve the environmental quality of the state's estuaries, with a focus on water quality and shellfish resources. The MOA established a 1-year grant to identify and eliminate illicit discharges into the storm drain system. DES administered the grant by sending out an RFP, choosing grant recipients, and managing the contracts. A total of \$18,000 was available for the grant. This report summarizes the project and provides details on the grants that were issued to Portsmouth, Dover, and Rochester.

## **PROJECT GOALS AND OBJECTIVES**

The goal of the project was to provide financial and technical assistance to coastal municipalities to identify and eliminate illicit discharges into the storm drainage system.

The project's objectives derived from an Action Plan identified in the NHEP Management Plan (Draft, 2000). One overall goal of the Management Plan is to ensure that New Hampshire's estuarine waters and tributaries will meet standards for pathogenic bacteria including fecal coliform, *E. coli*, and Enterococci. Action WQ-3c aims to eliminate storm drain cross connections (illicit discharges) in Seacoast communities. The grant summarized in this report was established to help carry out this action plan.

## **METHODS**

This section will discuss the process used to administer the grants. The Results and Discussion section describes details related to each grant.

On August 4, 2000, DES sent a request for proposals (RFP) to the cities of Portsmouth, Dover, and Rochester, announcing the availability of \$18,000 for illicit connection remediation. The RFP was targeted to those three cities because they were the only municipalities that were known to have identified illicit discharge sites and the sites were not yet fixed. The requirements of the use of the NHEP funds were as follows:

1. The proposed project will eliminate an illicit connection to a storm drainage system. Remedial activities can include:
  - Removing an illicit connection from the storm drainage system,
  - Reinstalling plumbing to a residence or commercial establishment, and/or
  - Rerouting pollutant discharge to an adequate treatment facility.
2. The proposed project meets the eligibility criteria (see below).
3. Funding must be met with a 50% local (non-federal) match.
4. All projects must be completed by December 31, 2000. This final date was changed to June 30, 2001, in an amendment to the MOA approved by Governor and Council on December 21, 2000.

Proposals were received from Portsmouth, Dover, and Rochester by the deadline of August 25, 2000. DES reviewed the proposals and assessed their merit based on the following criteria:

- Locations of illicit connections are known
- Illicit connections discharge into State surface waters
- Elimination of the identified illicit connections is supported by city officials
- Property owners are likely to cooperate
- Practical solutions can be implemented
- Results can be achieved
- Project is located within the city limits of Dover, Portsmouth, or Rochester

The three applications were accepted using these criteria. Grant recipients were notified of their successful application in early September, 2000. Because of the long time it took for each contract to receive city council's approval, obtain the necessary State signatures with final approval from the Governor and Council, it became necessary to extend the project's deadline beyond December 31, 2000, to accommodate the construction season.

## **RESULTS AND DISCUSSION**

The activities performed as part of each grant are discussed in this section.

### **Portsmouth**

The Portsmouth grant project consisted of eliminating a cross-connection between the sewer system and the storm drain system at the intersection of Dennett and Stark Streets.

Additionally, eight storm catch basins were removed from the sanitary sewer system in this area. The old connections were cut and capped, and new connections were established using a new PVC drain pipe. One catch basin that was draining a back yard system was removed from the sewer system and connected to the storm drain system. All disturbed areas were compacted and paved. The work was started on April 24, 2001 and completed on June 15, 2001. The city reports that the positive effects of this work have already been observed – during a heavy rainstorm on June 17, 2001, the area did not experience the sewer backups and overflows that had occurred in the past during heavy rains.

The grant amount for this project was \$7,170. Portsmouth provided \$10,104.16 in non-federal match.

## **Dover**

The original grant work scope included illicit connection identification and elimination in the Maple Street area and the removal of an illicit connection at 23-25 Winter Street. During the grant period, more work was done than anticipated. Tasks included the following:

1. Removal of an illicit connection at 23-25 Winter Street. The work was completed by the City of Dover personnel.
2. Removal of illicit connections at 564 Central Avenue. The work required an extension of the public sewer line and was completed under contract by SUR Inc. from Rochester, NH.
3. Removal of illicit connections at 3-4 Chestnut Avenue. The work required an extension of the public sewer line and was completed under contract by SUR Inc. from Rochester, NH.
4. Removal of illicit connections at 1 Lowell Avenue. The work was completed by the City of Dover personnel.
5. Removal of an illicit connection at 794 Central Avenue. The work was completed by the City of Dover personnel.
6. A smoke testing program was completed by Wright-Pierce Engineers of Topsham, ME, on numerous roads in anticipation of road repaving. City personnel and Rob Livingston of NH DES assisted in some of the smoke testing operations.

The smoke testing involved smoking the sewer lines and the storm drain system and noting which houses emitted smoke out of their sewer vent pipes. Results of the smoke testing are shown in Appendix A. Several new illicit connections were confirmed, and many more potential illicit connections were identified and should be further investigated. Follow-up work at these sites will likely happen with the help of the 2001-2002 grant. Potential illicit connections included houses that did not smoke at all or did not smoke from the sanitary sewer but there was not enough time to smoke the storm system. When houses did not smoke from either system, it could be because the service line is trapped, the vent stack is plugged or capped, or the vent stack may have been vented to the attic to prevent freezing problems. [All these conditions may indicate problems, as it is hazardous to have sewer gas venting inside a home.]

The grant amount for this project was \$6,000. Dover provided \$18,890.02 in non-federal match.

### **Rochester**

The purpose of the Rochester grant was to remove three illicit discharges into the City's storm drain system. One illicit connection was a 4-unit apartment building located at 9 Ela Court. When the sewer line was installed a number of years ago, this property was connected to the storm drain that empties into the Cocheco River rather than the sewer system. As part of this grant, the Rochester Department of Public Works hired A-D Archambault Plumbing and Heating, Inc. to connect the building to the sewer system for the first time. Based on initial investigations, it was anticipated that the property would require an individual pump station to connect to the sewer system. During construction, however, it was determined that all units could be connected via gravity.

The second property was a single family home at 1C Western Ave. The home is a converted garage, and an existing floor drain was used to discharge sewage. That floor drain was connected to the house drain at 1 Western Avenue, which was tied into the storm drain that empties into Willow Brook, a small tributary to the Cocheco River. A-D Archambault Plumbing and Heating, Inc. was hired to connect the property of 1 Western Ave. to the city sewer system.

The third property was a duplex at 37 Winter Street. When the City performed reverse smoke testing, the building appeared to be connected to the storm drain. However, when City crews dye tested the building to locate the connection, it was determined that the building was connected to the sewer system. Therefore, no additional work was required for this property.

The grant amount for this project was \$4,800. Rochester provided \$5,133.16 in non-federal match.

Rochester has now completed fixes on all their known illicit discharges.

## **CONCLUSIONS AND RECOMMENDATIONS**

Each of the grant recipients were able to eliminate at least one illicit discharge source during the grant period. Although we have not measured the water quality results, we are encouraged by the progress these cities have made towards remediating their illicit discharges. The municipalities have generally been eager to receive monetary assistance, but they have generally been able to supply more than the required 50% match.

Based on the experience of the 2000 grant, the following changes are recommended for future grant opportunities with NHEP regarding illicit discharges.

- A two-year contract would be preferable to the one-year contract of 2000. By the time the contracts were approved, there was no time left to complete the projects before winter. Department of Public Works personnel typically have many things to do in the summer, and there can be often be schedule delays, making a two-year contract less likely to need an extension.

- Funding for future years could easily be increased. Dover and Portsmouth have many illicit discharges and they will be working on these projects for many years to come. DES field work during the summer of 2000 also revealed several illicit discharges in Somersworth. Those three cities will probably be the next grant recipients.
- For those illicit discharges that originate in a private home, it may be appropriate to encourage municipalities to cost-share with homeowners. The grant is currently available to municipalities and not individual homeowners. Because the cities and towns fix some illicit discharges using grant money or municipal funds, but make other individuals pay for fixes, there has been concern that this practice may be unfair to low-income residents.
- When cities do force homeowners to fix illicit discharges, they should be sensitive to the timing of the order. Homeowners cannot have their basements ripped open during the winter, and so will not be able to comply with an order that has a deadline between November and April or so.
- Individual homeowners have had problems getting estimates from contractors to fix illicit discharges. The municipalities could expedite the fix by offering to do the work themselves, and then billing the homeowner.

Dover, NH - Sanitary Sewer and Storm Drain Smoke Testing  
4/9/2001 to 4/13/2001  
Street by Street Listing of Results  
**Table 5**  
Other Possible I/I Sources or Health Hazards Located

Street Name:	House #:	Notes/Comments
Arcola Ave	2	Floor and Outside Drain to sewer (I/I Source)
Ash St.	37	Roof Leaders to sewer (I/I Source)
Atkinson St.	23	Smoke from ground (service connection?) (I/I Source)
Atkinson St.	50	Smoke from Roof Leaders (I/I Source)
Belknap St.	26-28	Chimney smoke, broken pipe in basement of 28 side
Belknap St.	36	Open pipe in basement sink
Belknap St.	81	Roof leader near stairs and behind house to sewer (I/I Source)
Belknap St.	97	Smoke in basement through openings near washer
Belknap St.	59-61	Roof leaders on 61 side to sewer (I/I Source)
Central Ave.	221	Floor Drain to sewer (I/I Source)
Court St.	59	Light smoke from washing machine drain
Court St.	12-14	Smoke from yard near sidewalk (I/I Source)
Court St.	68-70	Light smoke from washing machine drain
Court St.	69-71	Loose cap in basement
Fifth St.	9	Abandoned Roof Leader (Possible I/I Source)
Fifth St.	21	Crack in sewer pipe in basement
Fifth St.	28	Working in 2nd floor bathroom - smoked
Folsom Ct.	5	Smoke in Kitchen - no trap on sink
Folsom Ct.	11-13	Smoke from Chimney
Fourth St.	84	4" D.I. Pipe to sewer in lawn (I/I Source)
Fourth St.	106	Floor Drain to sewer (I/I Source)
Grove St.	87	Smoke from ground near sewer service (I/I Source)
Horne St.	14	Smoke from Sewer in Chimney
Horne St.	18	Roof Leaders to sewer (I/I Source)
Horne St.	20	Basement Floor Drain and set-up for sump pump to sewer (no pump present at current) (I/I Source)
Horne St.	24	Basement Floor Drain to sewer (I/I Source)
Hough St.	38	Possible Roof leaders / Sump Pump to sewer (Possible I/I Source)
Locust St.	148	Possible Roof leaders to sewer (Possible I/I Source)
Locust St.	180	SMH in parking lot needs rehab (ground collapsed around riser and frame) (I/I Source)
Nelson St.	9	Open sewer pipe in basement needs cap
Nelson St.	15	Smoke from abandoned roof leader under porch
Nelson St.	16-22	Smoke from ground near island (I/I Source)
Silver St.	31	Smoke in basement (Possible I/I Source?)
Summer St.	51	Basement Floor Drain to sewer (I/I Source)